

Software choice for support method of «360 degrees»

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Abstract

The article describes the approach to solving the problem of choice of software for the support of the method of “360 degrees”, that provides the estimation of personal competences. The Analytical Hierarchy Process (AHP) is used for the choice of software according to some criterias.

Keywords: component; 360 degrees; personal competences; pair comparisons; AHP.

I. INTRODUCTION

Today any enterprise, aspiring to take a leading place in the market, can't do without the qualified experts. The skill level is defined not only professional, but also personal competences. And at determination of personal competences sometimes there are the difficulties connected, including, and with possible interpersonal problems in collective or high self-esteem of employees. Now in literature a number of techniques of an assessment of personal competences is offered. Each of methods has the merits and demerits. The following methods of an assessment are most often used: an expert assessment of the head within Performance Appraisal, an assessment of competences a method of Assessment of the Center, an assessment of competences a method of 360 degrees, tests of abilities, personal questionnaires.

The most developed and often applied is the method of an assessment of personal competences of «360 degrees» (an assessment of 360 degrees). The essence of this approach is that personal and professional qualities of the employee are estimated by results of the analysis of opinions of the people who are directly cooperating at work with the estimated employee. It is thus considered not only the immediate environment which includes the direct administration, colleagues on department or division and direct subordinates, but also distant, for example, higher administration or the staff of adjacent divisions.

Now the method of 360 degrees is used as independently, and as an additional method to other estimated procedures. Scope of this method of testing can be very wide: self-development and individual consultation; komandobrazovaniye; management of overall performance; personnel selection; compensation etc.

By results of an assessment of 360 degrees it is possible to draw conclusions:

- about nature of interaction between divisions, identifications of conflict situations;
- as far as the person is entered in corporate culture of the organization and existing collective;
- self-image of the person is how adequate.

The main stages of realization of a method are:

- carrying out a preparatory work that includes a choice of competences according to separate positions (with involvement of experts), drawing up of the list of respondents, drawing up of forms for an assessment, carrying out explanatory work with the personnel;
- assessment performance that means participation of employees in testing and support by the manager of this procedure;
- processing of the filled forms and registration of results in the form of the corresponding set of reports;
- the organization of a meeting with the purpose of granting feedback to the estimated employees.

The companies introducing at an assessment of 360 degrees, as a rule, face a software choice for carrying out an assessment. The simplest is use of the tabular Excel editor. However in this case it is possible to estimate successfully at most 10 people, and the bigger quantity will demand an enormous temporary resource and laborious manual skills that threatens with mistakes at input and information processing.

II. REVIEW OF EXISTING PROGRAMM SUPPORT

Other decision is use of the specialized software. Today there is a row of software products in which means for carrying out testing of personal competences on a method of «360 degrees» are realized.

1. 1C firm. Configuration "1C: Performance appraisal" is established as an independent configuration on a platform "1C:Enterprise 8". The assessment of 360 degrees is only one of methods being used in the program.

2. The companies offering systems of complex automation business of processes, such as Webtutor, HyperMethod and others, except the block of an assessment of 360 degrees there are also other methods of an assessment, and also possibility of the organization of distance learning, testing, polls is provided, etc.

3. The consulting companies which offer the programs directed separately on an assessment of 360 degrees, for example, Laboratory "Humanitarian technologies".

4. Many companies use own development.

III. THE SOLVING OF THE PROBLEM OF CHOICE USING THE ANALYTICAL HIERARCHICAL PROCEDURE

All above-mentioned options have both advantages, and shortcomings. To make a choice for one of ways of automation of a method «360 degrees», we will consider procedure of a choice of version of the software, based on a method of the analysis of hierarchies.

As possible versions of the decision the following options of obtaining the software will act:

1. Acquisition of the automated workplace of the employee of personnel service;
2. Acquisition of complex system of automation;
3. Acquisition of the ready decision on method automation "360 degrees";
4. Development of the program module by own strengths of programmers of the organization.

For definition of level of priority of this or that alternative a number of criteria of an assessment of options of receiving the program module on which these alternatives are compared is entered:

- cost of development, manufacturing, delivery;
- terms of development, manufacturing, delivery;
- compatibility (element, program) with the software available in the organization;
- technological independence and information security;
- existence of instructions and initial texts;
- support cost.

At the choice of the considered alternatives it is offered to apply a method of the analysis of hierarchies according to which relative measurements for a conclusion of scales of the relations on the basis of pair comparison of criteria among themselves and alternatives concerning each criterion are used to decision-making. The assessment of the relations is carried out on the basis of expert judgments with use of a fundamental scale and registers in matrixes of pair comparisons. As expert judgments the average estimates received from leading experts of the enterprises and the organizations, integrating and maintaining the similar software are used. The matrix of pair comparisons of criteria dimension 6x6 and six matrixes of pair

comparisons of alternatives dimension 4x4 as a result turned out.

As possible versions of the decision will be For use at the solution of a problem of hierarchical procedure of mnogokriterialny estimation a task (Fig. 1) is represented in the form of hierarchy.

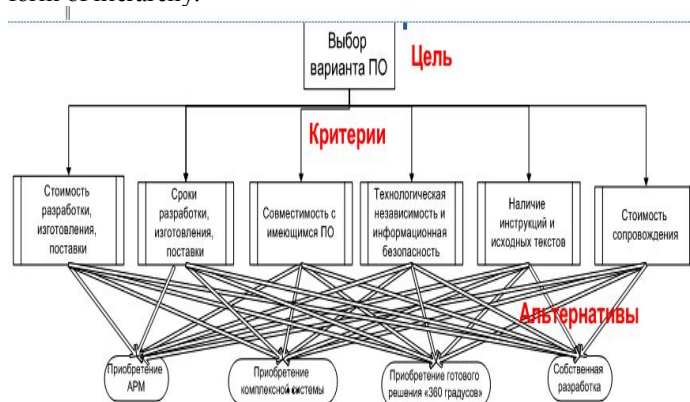


Figure 1. Scheme of hierarchical procedure of mnogokriterialny estimation

For the task set forth above the purpose – a choice of option of acquisition of the program module for inclusion in a program complex operating at the enterprise. Criteria - indicators on which comparison of alternative options of receiving the program module is carried out. Alternatives are options of receiving the program module, when processing matrixes of pair comparisons turn out weight or relative importance of these options, in the sum giving 1. The biggest weightiness characterizes the most preferable option.

When filling matrixes we consider that the criterion or alternative with smaller cost is better.

TABLE I. The matrix of pair comparisons of criterias

option choice	K1	K2	K3	K4	K5	K6		Vector of local priorities of criteria
K1	1	2	1/2	1/3	1	1	0,832683	0,1180
K2	1/2	1	1/4	1/5	1/2	1/2	0,429187	0,0608
K3	2	4	1	1/2	2	2	1,587401	0,2249
K4	3	5	2	1	3	3	2,542303	0,3603
K5	1	2	1/2	1/3	1	1	0,832683	0,1180
K6	1	2	1/2	1/3	1	1	0,832683	0,1180
Sums of columns	8 1/2	16	4 3/4	2 5/7	8 1/2	8 1/2	7	1,0000

$$\lambda_{\max}=6,0231; IS=0,0046; OS=0,0046/1,24=0,0037$$

TABLE II. The matrix of pair comparisons (MPC) of alternatives

	A1	A2	A3	A4		Вектор приоритетов альтернатив по первому критерию
K1						
A1	1	1/3	1/2	1/4	0,451801	0,0953
A2	3	1	2	1/2	1,316074	0,2776
A3	2	1/2	1	1/3	0,759836	0,1603
A4	4	2	3	1	2,213364	0,4668
Sums of columns	10	3 5/6	6 1/2	2	4 3/4	1

$$\lambda_{\max}=4,0314; IS=0,0105; OS=0,0105/0,90=0,0116$$

TABLE III. Results of the handling of MPCs

	K1	K2	K3	K4	K5	K6
λ_{\max}	4,0314	4,0042	4,0000	4,0083	4,0107	4,0314
ИС	0,0105	0,0014	0,0000	0,0028	0,0036	0,0105
ОС	0,0116	0,0016	0,0000	0,0031	0,0040	0,0116

For all considered criteria factor of OC <0,1 that speaks about coherence of judgments of experts.

Further we find weightinesses of alternative options
 $\omega_1=0,2152$; $\omega_2=0,2121$; $\omega_3=0,2559$; $\omega_4=0,3168$

The best alternative at number 4 as it has the greatest relative importance.

We find an assessment of coherence of hierarchy
 $OCI=M/M=0,0086/2,14=0,004$

As the coherence assessment less threshold value ($OCI<0,1$), hierarchy is coordinated, and all received results – are authentic.

Proceeding from all aforesaid, the decision on creation of own software product was made. Local own automated system with adaptation possibility under features of the concrete enterprise and with formation of own list of criteria of an assessment was developed.

The interface of the developed software product rather clear, available, effective, that is gives the chance to the user to work with the program, spending less efforts. Registration corresponds to a context, number of managing directors of elements optimum, i.e. minimum, but sufficient.

The data processed by the program, are stored on the organization server. With a view of safety the distributed access with use of logins and passwords is organized.

The program gives opportunity of obtaining the reports issued on requirements which are coordinated with the HR manager responsible for carrying out this testing. At formation of reports anonymity of participants is observed.

Lack of this approach of realization of a method of «360 degrees» and its automation is that unequal importance of criteria on which employees are estimated isn't considered. Thereof in the developed program the block (Fig. 2,3), allowing to consider weight of criteria and realizing a mnogokriterialny assessment of personal competences of employees was added. As a method of a mnogokriterialny assessment the method of the analysis of hierarchies also was chosen.

Figure 2. Formation of the individual development plan of the employee

Figure 3. Example of the filled matrixes of pair comparisons

Thus, use of the automated system of realization of a method of «360 degrees» and a database, developed with orientation to conditions of the concrete enterprise, will allow to reduce considerably quantity of used resources, to avoid possibility of emergence of mistakes in calculations and to increase convenience of work of the manager responsible for carrying out this testing, and participants of an assessment that is important for effective work of the organization. Also it will allow to increase quality of realization of this method of an assessment possibility to concentrate attention of the HR manager on introduction of additional organizational measures, improvement of the technique.